**3GPP TSG-RAN WG4 Meeting #95-e R4-2006609**

**Online, 25 May – 5 June, 2020**

**Source:** Huawei, HiSilicon, Bell Mobility, Telus

**Title:** TP to TR 38.716-03-02 for CA\_n25-n66-n78

**Agenda item:** 8.11.2

**Document for:** Approval

# Background

This contribution provides text proposal on the NR CA band combination CA\_n25-n66-n78 as defined in Revised WID on NR inter-band Carrier Aggregation/Dual connectivity for 3 bands DL with 2 bands UL [1].

# Text Proposal

##### ---Start of changes---

### 5.1.x CA\_n25-n66-n78

#### 5.1.x.1 Operating bands for CA

Table 5.1.x.1-1: CA band combination of band n25+n66+n78

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NR Band | Uplink (UL) band | | | Downlink (DL) band | | | Duplex  mode |
| BS receive / UE transmit | | | BS transmit / UE receive | | |
| FUL\_low – FUL\_high | | | FDL\_low – FDL\_high | | |
| n25 | 1850 MHz | – | 1915 MHz | 1930 MHz | – | 1995 MHz | FDD |
| n66 | 1710 MHz | – | 1780 MHz | 2110 MHz | – | 2200 MHz | FDD |
| n78 | 3300 MHz | – | 3800 MHz | 3300 MHz | – | 3800 MHz | TDD |

#### 5.1.x.2 Channel bandwidths per operating band for CA

Table 5.1.x.2-1: Supported bandwidths per CA band combination of band n25+n66+n78

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **CA operating / channel bandwidth [MHz]** | | | | | | | | | | | | | | | | |
| **NR CA Configuration** | **UL Configuration** | **NR Band** | **SCS [kHz]** | **5** | **10** | **15** | **20** | **25** | **30** | **40** | **50** | **60** | **70** | **80** | **90** | **100** | **Bandwidth combination set** |
| CA\_n25A-n66A-n78A | CA\_n25A-n66A, CA\_n25A-n78A, CA\_n66A-n78A | n25 | 15 | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |
| n66 | 15 | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |
| n78 | 15 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 60 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

#### 5.1.x.3 UE co-existence studies

Based on co-existence studies of Band n25 + Band n66, Band n25 + Band n78 and Band n66 + Band n78 captured in TR 38.716-02-00, the IM2 and IM4 products of n25 and n66 UL may fall into the RX frequency of n78.

#### 5.1.x.4 ∆TIB and ∆RIB values

For CA\_n25-n66-n78 , the ΔTIB,c and ΔRIB,c values are given in the tables below.

Table 5.1.x.4-1: ΔTIB,c

| Inter-band CA Configuration | NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| CA\_n25-n66-n78 | n25 | 0.6 |
| n66 | 0.6 |
| n78 | 0.8 |

Table 5.1.x.4-2: ΔRIB,c

| Inter-band CA Configuration | NR Band | ΔRIB,c [dB] |
| --- | --- | --- |
| CA\_n25-n66-n78 | n25 | 0.2 |
| n66 | 0.2 |
| n78 | 0.5 |

#### 5.1.x.5 REFSENS requirements

Based on Table 5.1.x.3-1, there are IMD2 & IMD4 products produced by Band n25 and n66 that impact the reference sensitivity of band n78. The required MSD are shown in the following table, which is the same as the MSD for DC\_2\_n66-n78 in TR 37.716-21-21.

Table 5.1.x.5-1: MSD for the CA configuration

| **NR Band / Channel bandwidth / NRB / MSD** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **CA Configuration** | **NR band** | **UL Fc  (MHz)** | **UL/DL BW  (MHz)** | **UL**  **LCRB** | **DL Fc (MHz)** | **MSD  (dB)** | **IMD order** |
| CA\_n25A-n66A-n78A | n25 | 1880 | 5 | 25 | 1960 | N/A | N/A |
| n66 | 1740 | 5 | 25 | 2140 | N/A | N/A |
| n78 | 3620 | 10 | 50 | 3620 | 29.4 | IMD2  |fn25+fn66| |
| CA\_n25A-n66A-n78A | n25 | 1880 | 5 | 25 | 1960 | N/A | N/A |
| n66 | 1740 | 5 | 25 | 2140 | N/A | N/A |
| n78 | 3340 | 10 | 50 | 3340 | 8.9 | IMD4  |fn25 -3\*fn66| |

##### ---End of changes---

# Reference

[1] R4-2004181, “Revised WID on Rel-16 NR Inter-band Carrier Aggregation/Dual Connectivity for 3 bands DL with 2 bands UL”, ZTE Corporation